Osteoarthritis and Cartilage 22 (2014) 1068–1070

Osteoarthritis and Cartilage

OARSI OSTEOARTHRITIS RESEARCH SOCIETY INTERNATIONAL

Corrigendum

Corrigendum to "The relationship between fibrogenic TGFβ1 signaling in the joint and cartilage degradation in post-injury osteoarthritis" [Osteoarthritis and Cartilage 19 (2011) 1081–1090]

A. Plaas † ‡, J. Velasco ‡, D.J. Gorski ‡, J. Li †, A. Cole ‡, K. Christopherson ‡ §, J.D. Sandy ‡ ‖ *

† *Department of Internal Medicine (Rheumatology), Rush University Medical Center, Chicago, IL, USA*
‡ *Department of Biochemistry, Rush University Medical Center, Chicago, IL, USA*
§ *Department of Internal Medicine (Hematology/Cell Therapy), Rush University Medical Center, Chicago, IL, USA*
‖ *Department of Orthopedic Surgery, Rush University Medical Center, Chicago, IL, USA*

The authors regret that references 137–180 were missing from the original article published. This caused citations within Table I to not be referenced and so Table I has been corrected and appears below, along with the missing references.

The authors would like to apologise for any inconvenience caused.

Table I
Wound healing mediators in dermal and joint tissues showing their source and major effects on cellular responses

Factor	Joint tissue source	Joint tissue repair responses	Wound cell source [20–23]	Wound healing responses [20–23]
EGF	SY[133]; OA SF[134]	Chondrocyte proliferation; ion transport, decreased matrix production	P,M,F	Epithelialization
FGF-2	SY[135–137]; AT[138]; OP[137]; OA SF[139–142]	Anti-apoptotic; prochondrogenic	M,EP,END,F	Angiogenesis Granulation tissue ECM production
TGFβ1	CA[143]; SY[144]; OP[137, 145]; OA SF[47, 48]	Pro-catabolic (MMP-13); chondrocyte hypertrophy	P,M,EP,END,F	Epithelialization, Granulation Tissue Fibroplasia
BMPs	SY[152]; CA[146–148]; BO[149, 150]; OA SF[151]	Prochondrogenic; Osteophytes	SC	Hairfollicle formation
PDGF	CA[143]; SY[153, 154]; OA SF[47]	Stimulates reparative responses in fibrochondrocytes; anti-hypertrophic	P,M,F	Granulation tissue Fibroplasia Contraction
VEGF	CA[155–159,163]; SY[158–161], AT[138]; OA SF[47, 162]	Delays reparative responses in meniscus and CA	P,N,M,END,F	Angiogenesis
IL1β	CA[143]; SY[180]; post ACLT SF[164–167]; OA SF [48, 167–170]	CA and meniscal matrix degradation	N,M,EP	Inflammation Epithelialization
IL6	CA[171, 172]; AT[138, 173]; PC[174]; Post ACL SF [164, 175]; OA SF[48, 169]	CA matrix degradation	N,M,EP	Inflammation Epithelialization
TNFα	CA[143]; SY[176]; AT[138]; Post ACLT SF[167,170,175, 177,178]; OA SF[48,168,169].	CA matrix degradation	N,M,EP	Inflammation Epithelialization

Abbreviations: ACLT: Anterior cruciate ligament tear; AT: Adipose tissue; OP: Osteophyte; PC: Plasma Cells; END: endothelial cells; EP: epithelial cells; F: Fibroblasts; M: Macrophages; N: Neutrophils; P: Platelets.

Missing References

137. Hosaka S, Shah MR, Barquin N, Haines GK, Koch AE. Expression of basic fibroblast growth factor and angiogenin in arthritis. Pathobiology 1995;63:249–56.
138. Uchino M, Izumi T, Tominaga T, Wakita R, Minehara H, Sekiguchi M, *et al.* Growth factor expression in the osteophytes of the human femoral head in osteoarthritis. Clin Orthop Relat Res 2000:119–25.
139. Ushiyama T, Chano T, Inoue K, Matsusue Y. Cytokine production in the infrapatellar fat pad: another source of cytokines in knee synovial fluids. Ann Rheum Dis 2003;62: 108–12.
140. Gudbjornsson B, Christofferson R, Larsson A. Synovial concentrations of the angiogenic peptides bFGF and VEGF do not discriminate rheumatoid arthritis from other forms of inflammatory arthritis. Scand J Clin Lab Invest 2004;64:9–15.

DOI of original article: http://dx.doi.org/10.1016/j.joca.2011.05.003.
* Address correspondence and reprint requests to: J.D. Sandy, Department of Biochemistry, Rush University Medical Center, Chicago, IL, USA.
E-mail address: jsandy44@gmail.com (J.D. Sandy).

http://dx.doi.org/10.1016/j.joca.2014.05.002

141. Sato J, Segami N, Kaneyama K, Konishi H, Yoshitake Y, Nishikawa K. Levels of fibroblast growth factor 2 in synovial fluids in human patients with internal derangement of the temporomandibular joint. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96:673–79.
142. Orito K, Koshino T, Saito T. Fibroblast growth factor 2 in synovial fluid from an osteoarthritic knee with cartilage regeneration. J Orthop Sci 2003;8:294–300.
143. Schmal H, Mehlhorn A, Stoffel F, Kostler W, Sudkamp NP, Niemeyer P. In vivo quantification of intraarticular cytokines in knees during natural and surgically induced cartilage repair. Cytotherapy 2009;11:1065–75.
144. Moos V, Fickert S, Muller B, Weber U, Sieper J. Immunohistological analysis of cytokine expression in human osteoarthritic and healthy cartilage. J Rheumatol 1999;26:870–9.
145. Yoshida H, Yoshida T, Iizuka T, Sakakura T, Fujita S. The expression of transforming growth factor beta (TGF-beta) in the synovial membrane of human temporomandibular joint with internal derangement: a comparison with tenascin expression. J Oral Rehabil 1999;26:814–20.
146. Verdier MP, Seite S, Guntzer K, Pujol JP, Boumediene K. Immunohistochemical analysis of transforming growth factor beta isoforms and their receptors in human cartilage from normal and osteoarthritic femoral heads. Rheumatol Int 2005;25:118–24.
147. Kwong FN, Hoyland JA, Freemont AJ, Evans CH. Altered relative expression of BMPs and BMP inhibitors in cartilaginous areas of human fractures progressing towards nonunion. J Orthop Res 2009;27:752–57.
148. Bobinac D, Spanjol J, Marinovic M, Zoricic Cvek S, Maric I, Cicvaric T, *et al*. Expression of bone morphogenetic proteins, cartilage-derived morphogenetic proteins and related receptors in normal and osteoarthritic human articular cartilage. Coll Antropol 2008;32(Suppl 2):83–7.
149. Chen AL, Fang C, Liu C, Leslie MP, Chang E, Di Cesare PE. Expression of bone morphogenetic proteins, receptors, and tissue inhibitors in human fetal, adult, and osteoarthritic articular cartilage. J Orthop Res 2004;22:1188–92.
150. Zoricic S, Maric I, Bobinac D, Vukicevic S. Expression of bone morphogenetic proteins and cartilage-derived morphogenetic proteins during osteophyte formation in humans. J Anat 2003;202:269–77.
151. Nauth A, Ristiniemi J, McKee MD, Schemitsch EH. Bone morphogenetic proteins in open fractures: past, present, and future. Injury 2009;40(Suppl 3):S27–31.
152. Chubinskaya S, Frank BS, Michalska M, Kumar B, Merrihew CA, Thonar EJ, *et al*. Osteogenic protein 1 in synovial fluid from patients with rheumatoid arthritis or osteoarthritis: relationship with disease and levels of hyaluronan and antigenic keratan sulfate. Arthritis Res Ther 2006;8:R73.
153. Schmal H, Niemeyer P, Zwingmann J, Stoffel F, Sudkamp NP, Mehlhorn AT. Association between expression of the bone morphogenetic proteins 2 and 7 in the repair of circumscribed cartilage lesions with clinical outcome. BMC Musculoskelet Disord 2010;11:170.
154. Pohlers D, Huber R, Ukena B, Kinne RW. Expression of platelet-derived growth factors C and D in the synovial membrane of patients with rheumatoid arthritis and osteoarthritis. Arthritis Rheum 2006;54:788–94.
155. Remmers EF, Sano H, Wilder RL. Platelet-derived growth factors and heparin-binding (fibroblast) growth factors in the synovial tissue pathology of rheumatoid arthritis. Semin Arthritis Rheum 1991;21:191–99.
156. Lingaraj K, Poh CK, Wang W. Vascular endothelial growth factor (VEGF) is expressed during articular cartilage growth and re-expressed in osteoarthritis. Ann Acad Med Singapore 2010;39:399–403.
157. Franses RE, McWilliams DF, Mapp PI, Walsh DA. Osteochondral angiogenesis and increased protease inhibitor expression in OA. Osteoarthritis Cartilage 2010;18:563–71.
158. Murata M, Yudoh K, Masuko K. The potential role of vascular endothelial growth factor (VEGF) in cartilage: how the angiogenic factor could be involved in the pathogenesis of osteoarthritis? Osteoarthritis Cartilage 2008;16:279–86.
159. Enomoto H, Inoki I, Komiya K, Shiomi T, Ikeda E, Obata K, *et al*. Vascular endothelial growth factor isoforms and their receptors are expressed in human osteoarthritic cartilage. Am J Pathol 2003;162:171–81.
160. Sato J, Segami N, Nishimura M, Kaneyama K, Demura N, Yoshimura H. Relation between the expression of vascular endothelial growth factor in synovial tissues and the extent of joint effusion seen on magnetic resonance imaging in patients with internal derangement of the temporomandibular joint. Br J Oral Maxillofac Surg 2003;41:88–94.
161. Haywood L, McWilliams DF, Pearson CI, Gill SE, Ganesan A, Wilson D, *et al*. Inflammation and angiogenesis in osteoarthritis. Arthritis Rheum 2003;48:2173–77.
162. Sato J, Segami N, Yoshitake Y, Nishikawa K. Correlations of the expression of fibroblast growth factor-2, vascular endothelial growth factor, and their receptors with angiogenesis in synovial tissues from patients with internal derangement of the temporomandibular joint. J Dent Res 2003;82:272–77.
163. Kim KS, Choi HM, Lee YA, Choi IA, Lee SH, Hong SJ, *et al*. Expression levels and association of gelatinases MMP-2 and MMP-9 and collagenases MMP-1 and MMP-13 with VEGF in synovial fluid of patients with arthritis. Rheumatol Int 2010.
164. Matsumoto K, Honda K, Ohshima M, Yamaguchi Y, Nakajima I, Micke P, *et al*. Cytokine profile in synovial fluid from patients with internal derangement of the temporomandibular joint: a preliminary study. Dentomaxillofac Radiol 2006;35:432–41.
165. Cameron ML, Fu FH, Paessler HH, Schneider M, Evans CH. Synovial fluid cytokine concentrations as possible prognostic indicators in the ACL-deficient knee. Knee Surg Sports Traumatol Arthrosc 1994;2:38–44.
166. Irie K, Uchiyama E, Iwaso H. Intraarticular inflammatory cytokines in acute anterior cruciate ligament injured knee. Knee 2003;10:93–6.
167. Catterall JB, Stabler TV, Flannery CR, Kraus VB. Changes in serum and synovial fluid biomarkers after acute injury (NCT00332254). Arthritis Res Ther 2010;12:R229.
168. Zysk SP, Fraunberger P, Veihelmann A, Dorger M, Kalteis T, Maier M, *et al*. Tunnel enlargement and changes in synovial fluid cytokine profile following anterior cruciate ligament reconstruction with patellar tendon and hamstring tendon autografts. Knee Surg Sports Traumatol Arthrosc 2004;12:98–103.
169. Westacott CI, Whicher JT, Barnes IC, Thompson D, Swan AJ, Dieppe PA. Synovial fluid concentration of five different cytokines in rheumatic diseases. Ann Rheum Dis 1990;49:676–81.
170. Holt I, Cooper RG, Denton J, Meager A, Hopkins SJ. Cytokine inter-relationships and their association with disease activity in arthritis. Br J Rheumatol 1992;31:725–33.
171. Marks PH, Donaldson ML. Inflammatory cytokine profiles associated with chondral damage in the anterior cruciate ligament-deficient knee. Arthroscopy 2005;21:1342–47.

172. Moktar NM, Yusof HM, Yahaya NH, Muhamad R, Das S. The transcript level of interleukin-6 in the cartilage of idiopathic osteoarthritis of knee. Clin Ter 2010;161:25–8.
173. Kaneyama K, Segami N, Sato J, Nishimura M, Yoshimura H. Interleukin-6 family of cytokines as biochemical markers of osseous changes in the temporomandibular joint disorders. Br J Oral Maxillofac Surg 2004;42:246–50.
174. Distel E, Cadoudal T, Durant S, Poignard A, Chevalier X, Benelli C. The infrapatellar fat pad in knee osteoarthritis: an important source of interleukin-6 and its soluble receptor. Arthritis Rheum 2009;60:3374–77.
175. Doss F, Menard J, Hauschild M, Kreutzer HJ, Mittlmeier T, Muller-Steinhardt M, *et al*. Elevated IL-6 levels in the synovial fluid of osteoarthritis patients stem from plasma cells. Scand J Rheumatol 2007;36:136–9.
176. Cameron M, Buchgraber A, Passler H, Vogt M, Thonar E, Fu F, *et al*. The natural history of the anterior cruciate ligament-deficient knee. Changes in synovial fluid cytokine and keratan sulfate concentrations. Am J Sports Med 1997;25:751–54.
177. Wassilew GI, Lehnigk U, Duda GN, Taylor WR, Matziolis G, Dynybil C. The expression of proinflammatory cytokines and matrix metalloproteinases in the synovial membranes of patients with osteoarthritis compared with traumatic knee disorders. Arthroscopy 2010;26:1096–104.
178. Higuchi H, Shirakura K, Kimura M, Terauchi M, Shinozaki T, Watanabe H, *et al*. Changes in biochemical parameters after anterior cruciate ligament injury. Int Orthop 2006;30: 43–7.
179. Elsaid KA, Fleming BC, Oksendahl HL, Machan JT, Fadale PD, Hulstyn MJ, *et al*. Decreased lubricin concentrations and markers of joint inflammation in the synovial fluid of patients with anterior cruciate ligament injury. Arthritis Rheum 2008;58:1707–15.
180. Pelletier JP, McCollum R, Cloutier JM, Martel-Pelletier. Synthesis of metalloproteases and IL-6 in human osteoarthritic synovial membrane is an IL-1 mediated process. J Rheumatol Suppl 1995;43:109–14.